REMARKS

Claims 1, 3, 5, and 6 will remain pending in this application after entry of this Amendment, for which applicants seek reconsideration.

Amendment

Claim 4 has been canceled, and claims 1, 3, and 6 have been amended to incorporate claim 4. Claims 1 and 6 also have been amended to identify that the tin oxide content refers to the weight percent for clarity. The specification has been amended to correct a typographical error identified by the examiner. No new matter has been introduced.

Art Rejection

Claims 1 and 3-6 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Harano (USP 5,009,922) in view of Bohler (USP 6,262,441). Applicants traverse this rejection at least to the extent that the combination would not have taught the attributes and characteristics of the transparent conductive film and the hole transport layer set forth in claims 1, 3, and 6.

Claims 1, 3, and 6 each call for a transparent substrate and a transparent conductive film formed on the substrate, and a hole transport layer laminated on a surface of the conductive film. The conductive film has the following properties: a work function of 4.9 to 5.5 eV, a surface roughness of 1 to 10 nm, and a specific resistance of $1.6 \times 10^{-4}\ \Omega \cdot$ cm or less. The conductive film comprises a mixture of tin oxide and indium oxide. The tin oxide content is 4 to 6 wt%. The energy barrier between the conductive film and the hole transport layer is equal to or smaller than 0.7 eV.

Harano indeed discloses a transparent substrate and a transparent conductive film composed of tin-containing indium oxide. The examiner states that Harano discloses claimed properties of the conductive film, except for the surface roughness and the work function; but as Harano discloses similar composition, it would have been inherent for Harano to possess the claimed surface roughness. While applicants disagree with the examiner's inherency argument (to the extent that the surface roughness must necessarily have the claimed surface roughness

range, not merely "could have"), even if Harano were deemed to inherently possess the claimed surface roughness, for argument's sake, Harano would not have taught the claimed work function of 4.9 to 5.5 eV, and the claimed hole transport layer, let alone the energy barrier between the conductive film and the hole transport layer being equal to or smaller than 0.7 eV. Harano simply does not teach these features.

In recognizing Harano's shortcomings, the examiner relied upon Bohler in an attempt to supplement the above features missing in Harano. The examiner states that Bohler's organic layer 4 corresponds to the claimed hole transport layer. For argument's sake, even if this layer were deemed to correspond to the claimed hole transport layer, Bohler would not have disclosed or suggested that an energy barrier is equal to or smaller than 0.7 eV. First, there is no mention anywhere in Bohler concerning the energy barrier layer between its organic layer 4 and its transparent conductive layer 2. Second, Bohler only mentions work function voltage ranging 4 to 7 eV. Accordingly, even if this voltage somehow is construed as the energy barrier, it comes no where close to 0.7 eV or less.

The examiner recognizes that Bohler is silent regarding the energy barrier value. In this vein, the examiner resorts to the catch-all "optimizing" argument that is routinely misapplied in the PTO to reject the claims, i.e., optimizing merely involves only routine skill in the art. The examiner's argument is not tenable here because 1) to optimize, one skill in the art would have to know what it is optimizing, 2) the examiner does not provide any support that 0.7 eV is a "magic" number, which is in the realm of optimization, and 3) the examiner does not provide any motivation that having the claimed energy barrier range would improve or otherwise would have been desirable in Bohler. As the examiner merely asserts a conjecture without any support or evidence, applicants submit that the examiner has not met the burden of proving prima facie obviousness. Accordingly, applicants submit that the applied combination would not have taught the claimed invention.

Conclusion

Applicants submit that claims 1, 3, 5, and 6 patentably distinguish over the applied references and thus urge the examiner to issue an early Notice of Allowance. Should the examiner have any issues concerning this reply or any other outstanding issues remaining in this application, applicants urge the examiner to contact the undersigned to expedite prosecution.

Respectfully submitted,

LYLE KIMMS
REG. NO. 34079
RULE 34A

Marc A. Rossi
Registration No. 31,923

Date: December 10, 2003

ROSSI & ASSOCIATES
P.O. Box 826
Ashburn, VA 20146-0826
Phone: 703-726-6020